

# THE HUMAN FACTORS QUARTERLY



Veterans Health Administration | Office of Informatics and Information Governance | Health Informatics

**Issue 16 - Fall 2016**



Articles in this edition of the newsletter represent a broad range of human factors topics. The first article describes an effort to educate mobile app development teams on common user interface design problems so that teams can evaluate their VA apps for certification. The second article is the final installment of a 3-part article about time and motion studies of VA clinicians using CPRS. In the third article, the authors provide a summary of the research on

the benefits of team-based training for healthcare providers. The final article is an interview with Linda Williams, RN, MSI, who has recently retired from the VA National Center for Patient Safety (and as a board member for the HF Quarterly Newsletter). Ms. Williams reflects on her experiences with human factors during her time of service at VA. As always, we welcome your questions, feedback, and ideas for new articles via e-mail to [VHA10P2HFQ@va.gov](mailto:VHA10P2HFQ@va.gov).

*From the Editor-in-Chief, Ross Spier*



## The Human Factors Engineering Self-Certification Initiative

*William Plew, Usability Specialist, Human Factors Engineering, Office of Informatics and Information Governance*

Currently, development of mobile applications for use by Veterans follows a strict compliance process, which involves multiple teams within VA and takes up a significant amount of time and resources. In an effort to both simplify this process and increase the Human Factors Engineering (HFE) team's availability, the HFE team has developed a [self-certification](#)

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*Alan Calvitti, PhD, Statistician, VA San Diego Healthcare System*

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### An Interview with Linda Williams: A Reflection on Her Career and the Trajectory of Human Factors in VA

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Linda Williams, RN, MSI is a member of the team at VA National Center for Patient Safety, serving initially as a computer specialist, and more recently as part of program operations with the central focus of development and implementation of patient safety curriculum for physicians. With the recent announcement of Linda's retirement, the editorial board wanted to interview her to give her an opportunity to reflect on where VHA is now compared to when she first joined the organization, and the trajectory of change she has seen in Human Factors during her career...

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Human Factors Engineering (HFE) within the Veterans Health Administration (VHA) Office of Informatics and Information Governance, Health Informatics Division seeks to increase awareness of human factors products and services among clinical end-users and other stakeholder groups. This quarterly newsletter serves to engage these communities in shared communication and collaboration around human factors-related issues.

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## Opening of the SimLEARN National Simulation Center in Orlando, Florida

*Ross Speir, Human Factors Engineering, Office of Informatics and Information Governance*

In the [Winter 2016 issue of the Human Factors Quarterly Newsletter](#), Dr. Haru Okuda and members of SimLEARN (Simulation Learning Education and Research Network) team described the importance of simulating and evaluating new...

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## The Human Factors Engineering Self-Certification Initiative

*William Plew, Usability Specialist, Human Factors Engineering, Office of Informatics and Information Governance*

Currently, development of mobile applications for use by Veterans follows a strict compliance process, which involves multiple teams within VA and takes up a significant amount of time and resources. In an effort to both simplify this process and increase the Human Factors Engineering (HFE) team's availability, the HFE team has developed a [self-certification process](#) for mobile apps. This process is designed to teach development teams the fundamentals behind usability verification of mobile apps, ensuring their apps meet the same standards HFE uses when evaluating them for compliance.

To develop the self-certification training, HFE first performed a rigorous review of other "self-taught" programs and best practices used within VA and by private-sector organizations. HFE began developing training materials for the initiative, carefully considering input from potential users throughout the development process. The training materials are designed to walk a member of the app development team through every step of the HFE certification process. To begin, they provide the user with a general overview of everything involved: the User Interface Design Certification (UI Cert), the Heuristic Evaluation (HE), Severity Rankings, and Peer Reviewing.

A UI Cert encompasses eight categories that are considered core aspects of an app for evaluation: Consistency, Device Orientation, Errors, Frequent Interactions, Modal Tasks, Readability, Sound, and User Input. The HFE process provides users definitions and guidelines of each of these categories, in addition to examples from products HFE had reviewed. An example for one of these categories is seen below in Figure 1. After reviewing all eight of the categories, users then proceed to a "Test Yourself" section within the document, based on wireframes that were created to mimic a typical VA mobile app, and include a standard UI Cert form. The wireframes are designed to contain both obvious violations of UI guidelines, as well as nuanced problems that may be difficult to catch. Upon independent completion of the form, users can compare their answers to the findings of an experienced usability professional.

1. Consistency – Terminology, standard navigation, lay-out, content presentation, load times, gestures, VA branding, icons:
  - Is terminology used consistently throughout the application?
  - Do application screens include standard navigation, adhering to the convention for either native or browser-based apps?
  - Are layout and content presentation consistent throughout the application?
  - Do all methods of scrolling and screen movement look and behave consistently throughout the application?
  - Does the application provide immediate (.25s) response (visual, audio, haptic feedback) indicating user input?
  - Does the application provide a processing indicator (e.g. a twirling wheel) when tasks take between 1-10 seconds?
  - Does the application provide an indication of remaining processing time for tasks expected to take 10 seconds or longer (e.g. saving information)?
  - When launching an application, does a splash screen convey it is a VA-sanctioned application?
  - Do all core gestures provide standard functionality, following the conventions for native or browser-based apps?
  - Does the application use standard icons that conform to VA branding and conventions for native or browser-based apps?

*Figure 1. UI Certification Example*

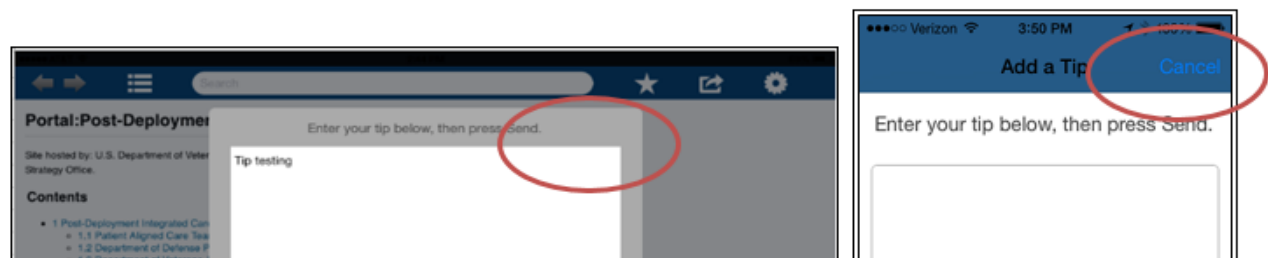
The self-certification process takes a similar approach to teaching users about the heuristic evaluation. Users are provided with an overview of each of the 10 heuristics, and provided with information on what the heuristic represents. Each of these overviews includes an example of a finding, recommendation, and accompanying screenshot to better showcase the issue. This can be seen below in Figure 2.

#### **Heuristic A: Visibility of system status**

**The system should always keep users informed about what is going on, through appropriate feedback within a reasonable time.**

**Example Finding:** There is no "Send" button or "x" to close out the tip entry screen on the iPad, so this effectively locks users into the area and forces them to perform a hard restart of the app. On the iPhone, a light blue "Cancel" button appears but because it is on a dark blue background, there is insufficient contrast for users who may have vision problems. **Serious ranking**

**Example Recommendation:** Add the "Send" button and a way to exit the tip window on the iPad. For the iPhone version, improve the contrast for buttons on the dark blue background; this applies to several buttons on several screens.



*Figure 2: Heuristic Evaluation Example*

After the user has finished reviewing all of the heuristics, they are once again presented with a "Test Yourself" section. This has the user go through the same set of HFE Test Certification Wireframes, this time looking for heuristic violations as opposed to UI Cert violations.

Users are given an explanation of the Severity Rating so that design problems can be associated with an impact to



user effectiveness, efficiency, and satisfaction. To wrap up the training, users are taught about the Peer Review process and how to upload their completed self-certifications.

Since the deployment of the HFE Self-Certification Training, the Office of Connected Care has completed and uploaded three self-certifications: Veteran Appointment Request (VAR) 3.0, My VA Health, and DS Logon Education Application (DLEA). Across the three documents, Connected Care discovered 35 HE findings and 10 UI Cert violations. While there is no standard measure of success for performing a HE or UI Cert, the number of findings and violations for each of the apps were only slightly lower than what HFE has discovered when evaluating apps of a similar size and complexity to those evaluated. Considering these issues were uncovered by staff with no prior usability experience, however, this can be seen as a huge success for the program from a training standpoint.

Feedback from the Office of Connected Care indicates the training materials took users longer to learn than initially estimated, and that the HE/UI Certs being performed taking significantly longer than estimated. As these are being performed by staff with no prior usability training, it is understandable for the first or second evaluation performed to take longer than expected. Despite this, HFE has received no negative feedback regarding the training materials themselves.

Looking forward to the future, HFE is currently monitoring the program carefully as it continues to be used. HFE will use the feedback from the Office of Connected Care in looking at modifications to both the process and training materials to make the self-certification easier. The next step will be to create an accompanying training video, providing further insight and clarification into the process. HFE is excited to see how this program evolves with time, and to apply the lessons learned throughout the process to other self-taught programs that may be developed within VA.

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### **Electronic Health Record (EHR) Use and Clinical Workflow Efficiency Part 3: Physician Computer Order Entry Activity**

*Alan Calvitti, PhD, Statistician, VA San Diego Healthcare System*

In this series of reports, we describe findings from an observational time-motion, Patient Centered EHR (PACE) study, based on 111 primary care encounters with 21 primary care physicians at VA San Diego area clinics. In the previous reports we gave summary statistics of activity during visits; primarily physicians' nonverbal gaze patterns and Computerized Patient Record System (CPRS) activity. In addition, we presented CPRS navigation and time-resolved patterns showing detailed task-switching behavior between CPRS tabs, as well as between computer and patient. Since most consecutive mouse clicks occur in the same CPRS Tab (major functions like Notes, Orders, etc...) clicks associated with changes between tabs are a measure of navigation.

In this report we summarize findings related to physicians' computerized order entry activity in CPRS. As noted in Part One of this series, order entry is the second most frequently observed task, based on clicks, after documentation. Here we focus on the most commonly observed types of orders: medications, lab tests, consults, and imaging studies. We treat clinical reminder completion as an order even if it is technically a documentation task, because the interface for completing reminders is similar to order entry. We omit some less frequently encountered order types (e.g. Nursing, Procedures, Allergies) as they were seldom observed in the PACE study, so statistics are unreliable. We did not have approval to capture keyboard activity, as typing likely contains identifiable, protected information, so the study focuses on mouse click activity only. Hence we have no visibility into details of order entry such as in text boxes. Further, we filtered out mouse scrolling.

In part A of Figure 3, the chromogram shows mouse clickstream for a single example visit (actually an outlier visit: with the highest click count in the study). Each dot represents a mouse click such as navigation or lookup

information, while clicks related to order-entry are shown tagged by the color and sequence number of the item being ordered; for example, the first 10 light-blue clicks labeled “1” are related to the first clinical reminder that the physician is completing, the next 5 clicks labeled “2” with the second reminder. This is followed by two mouse clicks (dots) that are likely navigation related and immediately after is a group of 23 dark blue clicks labeled “1” - i.e., the first medication that the physician orders in the visit. In total, the physician consumed 685 mouse clicks during the visit (covering order and other activities) and ordered six medications (165 clicks total), five lab tests (green, 15 clicks total), three consults (red, over 68 clicks total), two imaging studies (yellow, 32 clicks) and completed two clinical reminders (15 clicks total). During most visits, physicians multi-task between order entry and other activities, such as looking up information or even documenting the order entry task in notes (as suggested by the large proportion of back-and-forth between Notes and Orders tabs in the CPRS navigation graph, see report #2 in this series).

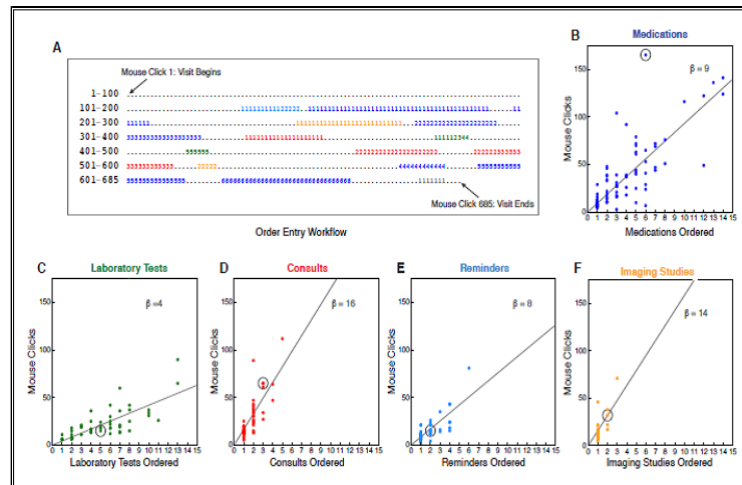


Figure 3. Mouse Clickstream and Study-Wide Patterns of Order Entry ([click to expand](#))

Parts B-F in the figure show scatter plots, and a statistical summary of study-wide patterns of order entry activity and the user burden of ordering items through a typical EHR menu-driven User Interface. In each scatterplot, every point represents the number of items ordered in the visit along the x-axis, and the number of mouse clicks needed to complete those items along the y-axis. For orientation, results for the previous outlier visits are circled. We carried out a linear regression for each order type to summarize the typical ratio (slope) of clicks to orders. It takes nine mouse clicks to order a typical medication, while only about four clicks to order a typical lab test. Consults and imaging studies take at least 15 clicks per item, and clinical reminders take more than eight clicks. Regression analysis shows that consults and imaging are especially high-burden tasks. The types of orders varied greatly in frequency in the PACE study: medications are the most frequently ordered items, followed by labs. Consults, imaging and reminders were not as frequent (visits with no activity for a given type are not shown in the plots for clarity). Another at-a-glance pattern is the sheer number of meds and labs ordered per visit.

Next we consider some usability issues derived from this analysis. First we emphasize that this analysis requires a fair amount of human coding based on review of CPRS display video, since the usability software (Morae) only provides timestamps. It's the human coder that determines when the order entry task begins and ends (segmentation). This is unlike laboratory usability situations where tasks are pre-defined. Here we study the natural situation where there is a great deal of multi-tasking. It turns out, for example, that clinically relevant EHR tasks like medication reconciliation are often difficult to segment even with human review because data is so fragmented, and doctors have to move around various CPRS Tabs like Meds and Notes.

Besides the EHR navigation burden, a key efficiency issue is that often doctors do duplicative work when they document the orders they just completed in progress notes. They likely do this because they want information structured in notes in a preferred format, or to give context to the order by providing a clinical condition or reason. Current EHRs do not provide a convenient tool for this. Some EHRs are starting to add context to orders by associating diagnoses labs and meds orders. Epic (commercial EHR) has this feature, but it is largely a manual task that forces users to check off selections from a menu.

An envisioned future direction for reducing navigation and some menu driven tasks may be leveraging voice

commands. Intelligent agents (e.g. Siri, Alexa) are increasingly integrated with apps and operating systems, so contextual information may be added more directly, for example, "Order glycosylated HGB blood lavender for pneumococcal vaccination."

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## Benefits of Healthcare Team training: A Meta-Analysis

Ashley M. Hughes, PhD, Health Science Specialist, Houston Center for Innovations in Quality, Effectiveness, and Safety, Michael E. DeBakey VA Medical Center, Baylor College of Medicine

**Background:** Team training is hailed as one of the [top 10 innovations to improve patient safety now](#). Yet, despite recent proliferation of team training programs, their [widespread use](#), and their promise for [reducing patient mortality](#), little is known about the usefulness of team training in healthcare settings. To determine the realistic value of participating in team training, a collaborative team of interdisciplinary researchers\* aimed to quantify effectiveness and the conditions under which it is most effective through meta-analysis. Our findings are detailed in a [recent study published in the Journal of Applied Psychology](#).

**Approach:** The meta-analysis our team conducted considered the extent to which team training produces improvements at the level of various evaluation criteria: trainee reactions (i.e., the extent to which trainees' perceptions of utility and satisfaction with teamwork improve from pre to post-training); learning (i.e., trainees increase in teamwork knowledge, skills and attitudes); transfer (i.e., use of trained behaviors on the job); and results (organizational effectiveness criteria used to determine the "bottom-line"). We further sought to specify the moderating effects of several healthcare and team-specific variables such as: simulator fidelity; acuity of patients within a given unit receiving training, the homogeneity of teams being trained (i.e., whether they were homogenous; interprofessional, or interdisciplinary); training strategy employed (i.e., Was a single strategy [e.g., didactic only, simulation only] or a multitude of strategies [e.g., didactics, demonstration, accompanied with simulation] employed?) to disseminate teamwork; and whether trainees were provided with feedback on their use of the skills.

We searched databases- salient to both psychology and healthcare- such as PsycINFO, PubMed, OVID, MEDLINE, Science Direct, Google Scholar, ProQuest Dissertations and Theses, Academic Search Premier, Business Search Premier, CINAHL- using a combination of terms to denote team training and healthcare. Included studies had to report an empirical evaluation of team training in healthcare and report statistics that could be converted to a Cohen's d statistic.

By identifying relevant studies through a systematic process (see Figure 4), we found 129 studies with 146 independent samples which empirically evaluated team training in a healthcare setting. Among studies included in this review are evaluations of the VA's Medical Team Training (MTT) Program.

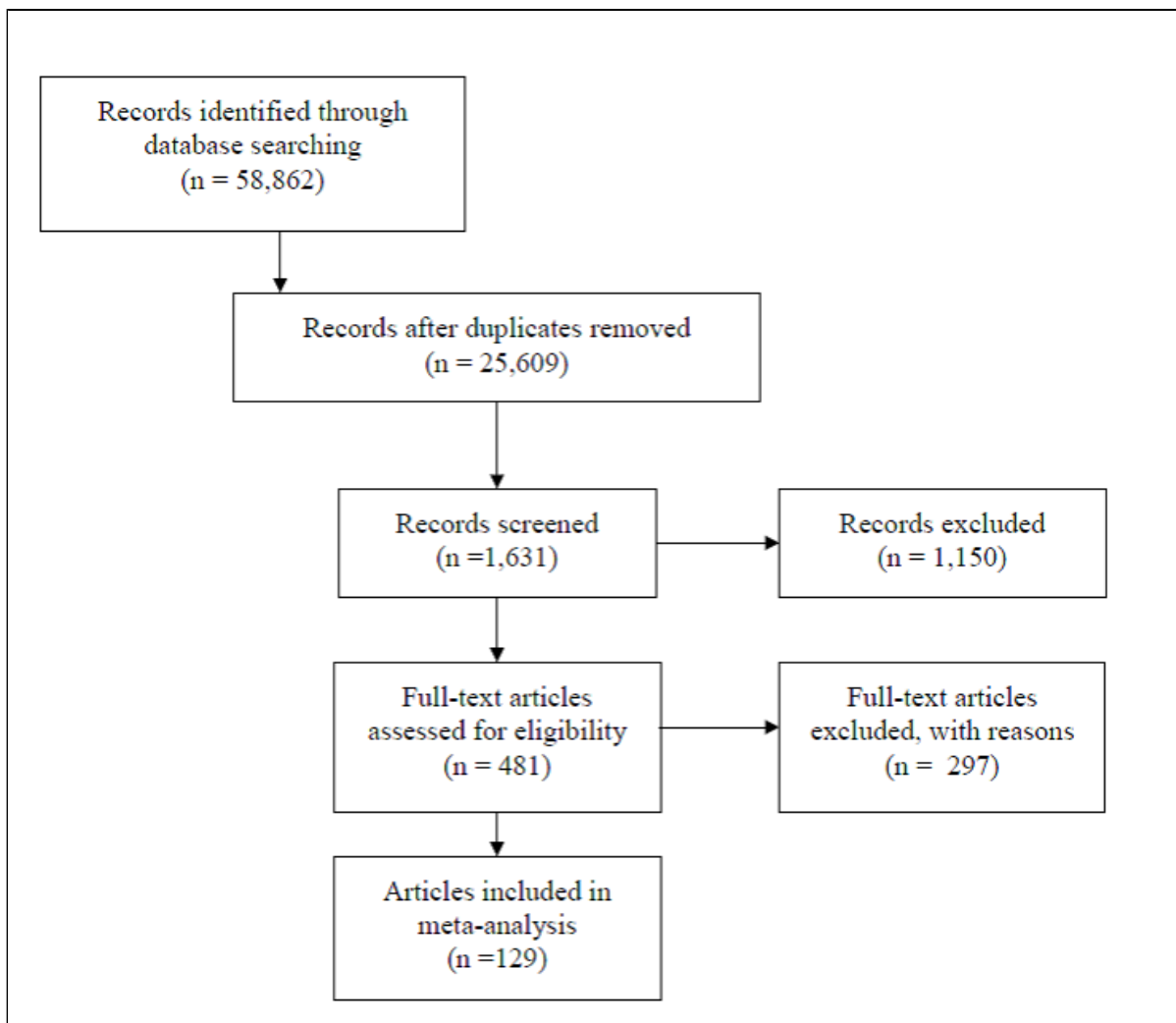


Figure 4. PRISMA Flow Diagram

**Findings:** Results of this review find that team training is effective and is useful in several ways. First, team training is well-liked by trainees (that is, reactions improved 19 percent, indicating team training was perceived as useful and enjoyable), trainees' teamwork use increases by 31 percent in learning and 25 percent in use on-the-job, and healthcare organizations' participation in team training gained 15 percent improvement in bottom-line results. Among these improvements, we found team training reduces medical error by 19 percent, improves clinical care performance by 34 percent, enhances patient satisfaction by 15 percent, and results in a 15 percent reduction in patient mortality. Results suggest that participation and learning during a team training program produce meaningful improvements to healthcare organizations and that bottom-line results can be improved as a direct result. Our findings further suggest that trainees, regardless of their level of education or professional/discipline status, can benefit from training. For example, improvements can be seen in the patient acuity of a given care area or in the incorporation of a life-like simulator.

However, providers should exercise caution by using best practices for providing feedback to see improvements in teamwork. Taken together, the results are encouraging that healthcare organizations can see moderate to large improvements in their employee's performance and organizational results by participating in a healthcare team training program.

#### \*Acknowledgements

This work was done in conjunction with researchers at Rice University, Department of Psychology, University of Central Florida's Department of Management, Johns Hopkins Armstrong Institute for Patient Safety, Department of Defense TRICARE Management Activity, and the Institute for Simulation and Training at the University of Central Florida.





## **An Interview with Linda Williams: A Reflection on Her Career and the Trajectory of Human Factors in VA**

*Christopher Petteys, Program Coordinator, Human Factors Engineering, Office of Informatics and Information Governance*

Linda Williams, RN, MSI is a member of the team at VA National Center for Patient Safety, serving initially as a computer specialist, and more recently as part of program operations with the central focus of development and implementation of patient safety curriculum for physicians. Linda also is involved in the practical application of usability principles to medical devices and software. She has served admirably on this newsletter's editorial board for the past 2 years. Linda holds an undergraduate nursing degree from the University of California at Los Angeles and an M.S.I. degree from the University of Michigan's School of Information, a degree tailored to medical informatics with an emphasis in human computer interaction. With the recent announcement of Linda's retirement, the editorial board wanted to interview her to give her an opportunity to reflect on where VHA is now compared to when she first joined the organization, and the trajectory of change she has seen in Human Factors during her career.

**Chris Petteys:** Describe your VA career and the various positions you've held, including your current one

**Linda Williams:** *The kind of work that I have done since being here at the VA National Center for Patient Safety (NCPS) is the result of a mid-life career change. My only job with VA has been here at the NCPS. Before coming to work for VA, my impression of VA healthcare was all very positive - and it remains so.*

*When I first started here I was the entire computing department. As NCPS began to hire real computer experts, I gradually migrated to developing curriculum for graduate medical education in patient safety. [John Gosbee, MD, MS](#), who has been interviewed here, hired me originally, and we continued to work to integrate patient safety into residency programs in any VA where residents train.*

*The years that I spent working as a nurse taught me the crucial importance of the design of things and the interface with humans – whether those interfaces are with computers, devices, or other humans.*

*It has been exciting to see the work build from an idea to establishment of a Patient Safety Fellowship and a Chief Residency in Quality and Safety; both firmly grounded in human factors engineering. [Fellows](#) and [Chief Residents](#) have contributed to previous issues of this newsletter.*

**C:** How were you first introduced to the principles of human factors?

**LW:** *When I returned to graduate school at the University of Michigan, my intent was to customize coursework to match an informatics degree. The sub-specialty is human-computer interaction. I opted to emphasize information science as well after meeting some amazing medical reference librarians at the American Medical Informatics Association conference. Fortunately, I was surprised by the Miranda Lee Pao Scholarship allowing time for that bit of enhancement.*

*There are three professors who were particularly influential with regard to Human Factors Engineering (HFE). Judy Olson, whose research focus is computer-supported collaborative work and HCI, taught me the significant importance of usability testing. [Nathaniel Borenstein](#), the father of the email attachment, challenged students to test their own design skills, first with a relatively simple interface, a microwave, and then with something bigger. Another student who has become a life-long friend and collaborator, [Dean Karavite](#), and I designed Abracadaver, a virtual reality equivalent of a cadaver for learning human anatomy. No, it never came into being, but we did all of the foundational work that could be done in a semester. If you attend HFES or the healthcare symposium, you are likely to meet Dean. And it was at the HFES conference where I first realized that I'd found my people. It is a wonderful thing to be surrounded by like-minded people for a cause.*

*A third professor with considerable influence is one who successfully stretched across boundaries to encourage*

any workable approach to solving healthcare delivery problems. [Michael D. Cohen](#) kept healthcare as the predominant theme for the Interdisciplinary Committee on Organizational Studies at the University of Michigan. Even in the last year [of his life], he concluded a study showing that changing the way emergency room personnel handle conversations when they hand off patients from one shift to another could make a meaningful difference in the tens of thousands of accidental deaths in hospitals each year.

**C:** How do you feel human factors relates to patient safety?

**LW:** Patients aren't as safe as they could be because healthcare has come late to realize the importance of human factors engineering. HFE is absolutely critical to solving patient safety issues. Now it is a battle to convince manufacturers that they must hire/consult with human factors experts early in design and development.

**C:** How has the awareness of Human Factors changed over time?

**LW:** In VA, it can be seen in this newsletter. Prior to reading this interesting quarterly publication many of us weren't aware of all the ways that HFE work is happening. We are finding each other at the Human Factors and Ergonomics Symposium ([HFES](#)) and Applied Human Factors Ergonomics ([AHFE](#)) conferences and [simulation conferences](#) too.

Aside from the opportunity to collaborate with others in VA, the biggest change that I've seen is in [graduate medical education](#). It is no longer just a handful of residency programs that are including HFE in their patient safety curriculum, there are now well-established Chief Residents teaching more junior residents. It isn't an attempt to produce physicians who have expertise in HFE, but physicians who are sufficiently informed to demand safely designed equipment and systems - and recognize when it is time to call for a consult with the HFE experts - just as they do when referring a critically ill patient.

**C:** Have you seen general improvements in the practice of human factors and patient safety?

**LW:** The best improvement is translational research - the recognition that we must rely on HFE research for problem solving; and be willing to fund both research and translation. NCPS funds Patient Safety Centers of Inquiry. One of the centers lead by Russell Branaghan established the impossibility of safely cleaning endoscopes while trying to follow the printed instructions for cleaning. Another PSCI, led by [Jamie Estock](#), is working on usability testing in high fidelity simulation prior to purchase decisions. Jamie is a former Patient Safety Fellow and a past writer for this newsletter.

**C:** What role do you see human factors taking in VA in the future and what is its greatest potential for positive impact?

**LW:** As I mentioned, HFE is absolutely essential for designing systems that are safe for human use. I know of keen interest from the Department of Defense (DoD) for collaboration with VA HFE experts. Whether that happens or not, the best potential is our ability to collaborate across boundaries - to further our work and that of our colleagues. I think that [Ken Catchpole](#) got it right in his recent article saying that we have to be willing to accept some things that may seem somewhat foreign and be willing to express tolerance. It is a bit like what you see when a group of doctors are talking about where they went to school and therefore what approach they use to place sutures (or some corresponding procedure). We also want to know from our colleagues if they are of cognitive psych or engineering background and what school and which professors. We weigh our estimate of their words accordingly. New discoveries and progress in general will come out of fairly enthusiastic tolerance and acceptance, not from defending our own precious ideas.

**C:** Have you seen changes in the maturity of usability testing and patient safety practices in VA?

**LW:** I don't think it is maturity as much as it is acceptance of the need for usability testing, and the use of it to document issues that will mean better purchase decisions. A very happy use of usability testing is to be able to target difficult steps and focus training efforts, saving new users a lot of time and frustration while improving patient safety. Instead of having everyone attend an hour-long training session, the challenging or confusing steps can be elucidated or demonstrated. This isn't in general practice yet, so the answer to the question is that maturity is yet to come.

**C:** Have you seen a shift in focus from a reactive to proactive approach in patient safety in VA? Explain.

**LW:** *Here at NCPS, there is keen interest in making the outcomes of Healthcare Failure Mode and Effect Analysis (HFMEA) easier to share. HFMEA is labor intensive, so sharing findings spreads the benefit. It is also part of any new hospital opening. HFMEAs reveal things that might have seemed obvious, but without the completion of analysis, the documentation of failures isn't available to force correction. Patient lifts that claim to be safe for 400 lb. patients fall under 350 lbs. Proposed new patient rooms built in real-life size are discovered not big enough for a patient transfer from stretcher to bed without removing all the furniture and medical equipment in the room.*

**C:** Any other comments you would like to share as you ready for retirement?

**LW:** *One of my least favorite things to see is people defending their boundaries and shying away from difficult problems. HFE experts are needed in difficult places: in the OR where preventable fires cause severe patient harm, in any hospital unit where invisible microbes threaten with antibiotic resistance, and where staffing levels are so tight that there is no system tolerance for safely managing a crisis situation.*

*One of the happiest of all discoveries over the past 17 years is how very well HFE resonates with every human regardless of the professional/educational background. That is because we are all humans, I suppose. Finding colleagues and shared work at the boundaries is so satisfying. University of Michigan and Michigan State University are traditional rivals, but the very happy collaboration with the [MSU School of Packaging](#) and their usability lab is something I wouldn't have wanted our fellows and their graduate students to have missed. I see that potential in our newsletter authors and readers. We are a pretty diverse group. We have important work to do and not enough time. The time that we give to advance each other's work multiplies the results all around. I'll be watching your progress from my kayak!*

### **Special Acknowledgment**

The Human Factors Quarterly Newsletter Editorial Board would like to thank Linda for her dedication and contributions to the HFQ Quarterly newsletter over the past two years, and wish her the best of luck and to an enjoyable retirement. We would also like to congratulate her on winning the [2016 Oliver Keith Hansen Outreach Award](#) in recognition of her service and excellence in outreach to the general public, government agencies, and professional organizations.

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## **SPOTLIGHT ARTICLE**



### **Opening of the SimLEARN National Simulation Center in Orlando, Florida**

*Ross Speir, Human Factors Engineering, Office of Informatics and Information Governance*

In the [Winter 2016 issue of the Human Factors Quarterly Newsletter](#), Dr. Haru Okuda and members of SimLEARN (Simulation Learning Education and Research Network) team described the importance of simulating and evaluating new clinical services prior to service activation. Conducting high-fidelity simulations to evaluate patient flow, clinical workflow, and equipment interoperability help identify process

improvements and mitigate risks of adverse events. Simulations of clinical processes also support the training of clinical staff on new or modified services.

In September of this year, VA opened a SimLEARN National Simulation Center in Florida on the campus of the new Orlando VA Medical Center. This facility is capable of replicating (in high-fidelity) many patient treatment areas including outpatient clinics, intensive care units, operating rooms, and other specialty procedure rooms. These immersive training environments, along with 10 classrooms, will support VA in the development and delivery of national simulation-based training curricula.

The VHA National Simulation Center will serve as the operational hub for coordination of all national VHA clinical simulation activities. The center was built in close proximity at the University of Central Florida campus, and is part of a new "Medical City" campus that includes other large clinical, education and research facilities. This strategic placement of the center facilitates opportunities for research in new simulation technologies and methods.

Additional information about the new center can be found on the [VHA SimLEARN](#) website.

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